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Cover: A female Javan Leopard *Panthera pardus melas* in rehabilitation phase at Cikananga Wildlife Center. © Yayasan Cikananga Konservasi Terpadu.



Salvia misella Kunth (Lamiaceae) - a new record for Eastern Ghats of India

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Salvia Tourn. ex L. is the largest genus in the family Labiatae (Lamiaceae nom. alt.) comprising about 950 species and distributed in tropical, subtropical and temperate regions of the world with greater species diversity in America including Mexico, and good numbers in Africa, Europe, Sino-Himalayan region and southwestern Asia (Mabberley 2017). Based on field survey and consultation of the specimens in different herbaria of Botanical Survey of India, universities and institutions in India, Sunojkumar & Rinshy (2017) reported the occurrence of 31 species of *Salvia* in India including some introduced species, while Kumar et al. (2020) listed 23 species and four varieties, which include only wild and naturalized taxa. Of these, species such as *Salvia coccinea* Buc'hoz ex Etl., *S. leucantha* Cav., and *S. plebeia* R.Br. are invasive weeds in several states.

During plant inventory of Eastern Ghat region of Odisha, the authors located three populations of an interesting species of *Salvia* with glandular-pubescent calyx and small blue flowers along Jeypore-Koraput road (National Highway no. 326) of Koraput District of Odisha and collected specimens for identification. On detailed examination of plant specimens, consultation of relevant literature and matching with authentic herbarium specimens including images of specimens in Kew Herbarium Catalogue (<https://apps.kew.org/>

herbcat/ navigator.do), it was identified as *Salvia misella* Kunth (Lamiaceae). This species is considered as an invasive weed in tropical America (Williams 1972; Richardson & Keng 2010), Australia, Papua New Guinea, and Africa. Sunojkumar & Pradeep (2015) have reported its occurrence from Kerala, whereas Kottaimuthu et al. (2016) recorded it from Western Ghats of Tamil Nadu state, India. The present wild occurrence of *Salvia misella* from Koraput district of Odisha is very interesting from phytogeographical point of view and extends the distributional range of the species to Eastern Ghats of the country. The nomenclature, botanical description, phenology, habitat, specimens studied and colour photographs are provided below for easy identification of the species.

Salvia misella Kunth, [H.B.K.] 2: 290. 1818; Epling in Fedd. Rep. Beih. 16: 110. 1938; Back. & Bakh.f., Fl. Java 2: 627. 1965; Sunojk. & Pradeep, Phytotaxa 230 (3): 281. 2015; Kottaimuthu et al., Journ. Biol. Records 1(3): 124. 2016 (Image 1).

Annual or biennial herbs, up to 1m tall. Stem erect, profusely branched, quadrangular, sulcate, minutely gland-dotted, covered with hispidulous or pilose hairs. Leaves sessile, membranous, broadly ovate or lanceolate-ovate, 4–6.5 × 1–4 cm, apex acute, margin serrate, base decurrent upon length of petiole,

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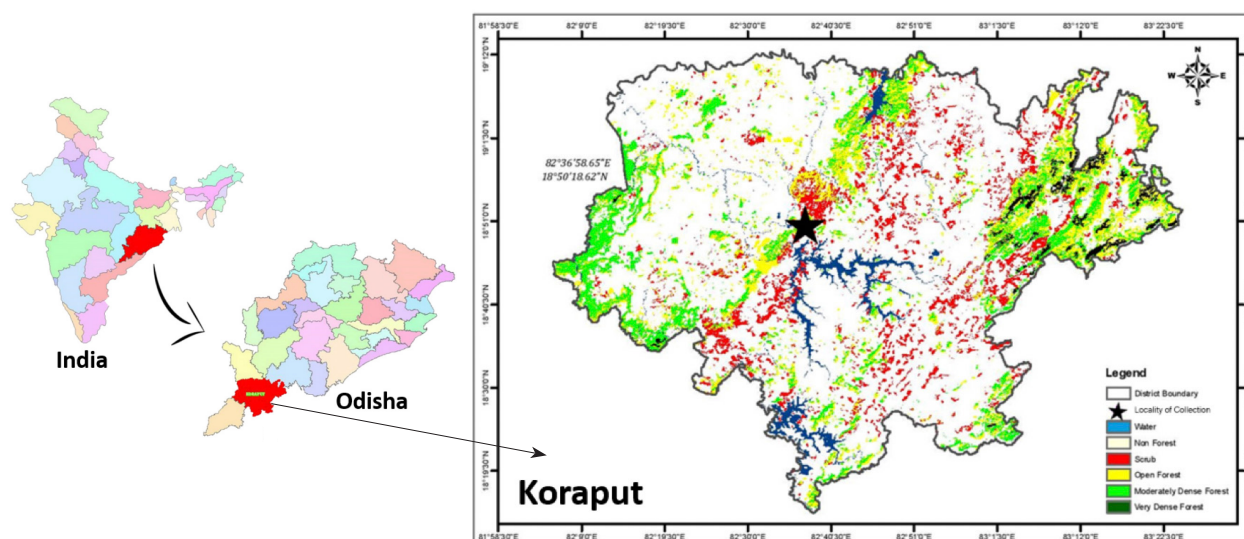


Figure 1. Map showing the distribution of *Salvia misella* in Koraput district of Odisha, India.

dull green, densely hispid on both sides, more so on lower veins. Inflorescence simple, terminal racemes, 16–20 cm long, with 12–20 interrupted verticils of 1–2 flowers each; peduncles 2–5 cm long, glandular-pubescent. Bracts broadly ovate, 1.5–3.0 mm long, persistent, glabrous inside, glandular-pilose outside. Calyx campanulate, 4–5 mm long, clothed with dense glandular-pubescent hairs all over, 10–12-veined, lips shortly cleft; upper lip rounded, shortly caudate; lower lip 2-toothed, each lobe with single teeth, rostrate. Corolla blue, white towards base and white strips from throat downwards, 6–8 mm long; tube 3–4 mm long; posterior lip concave, glandular-pubescent along ventral margins; anterior lip 4–5 mm long, 3-lobed, middle lobe emarginate. Stamens 2, included in corolla tube or exerted, articulated on filament; filaments 1.2–1.3 mm long, connectives produced, adnate towards lower half and pubescent. Style glabrous, included, 5–6 mm long; stigma bifid. Mericarp oblong, grey with dark streaks, mucilaginous when wet; seeds greyish to brown in color, obovate, with highly reticulate venation.

Flowering and fruiting: November to February.

Distribution: The species has been reported to occur in Central America, Australia, Papua New Guinea, and central Africa. In India, the species has been recorded from Western Ghats (Kerala and Tamil Nadu) and with the present report from Odisha, its distribution range is extended to Eastern Ghats (Figure 1).

Habitat: Moist habitats, around 250 m.

Salvia misella is considered as a weed in tropical America (Williams 1972; Richardson & Keng 2010). In Western Ghats, this species is reported to grow along

with several other weedy species. The newly located populations of the species in Koraput district of Odisha were found in three separate small patches growing as an understory plant in semi-shaded locations in moist habitats close to the National Highway no. 326 at an elevation of about 255 m. The common associates are *Ageratum conyzoides* L., *Chromolaena odorata* (L.) R.M.King & H.Rob., *Vernonia cinerea* (L.) Less, *Mimosa pudica* L., *Chloris barbata* Sw., and *Sporobolus indicus* (L.) R.Br. It is most likely that the seeds of *Salvia misella* might have been dispersed through vehicles carrying food grains or construction materials from above mentioned southern Indian states.

Specimens Examined: 11076 (RPRC), 11.xii.2019, India, Odisha, Koraput, Kalabhairabi, along National Highway no. 326, 18.838°N and 82.616°E, 255 m, coll. P.K. Das & P.K. Kamila (Image 2).

Specimens image viewed: 245 (K), S. Coll., Jamaica (K000479224); 322 (K), 24.xi.1975, Mexico, Guerrero, 1250 m, coll. K.M. Peterson, C.R. Broome & R.M. Harley (K000266705)

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Image 1. *Salvia misella*: a—habitat | b—whole plant | c–d—leaves with venation | e—stem | f—inflorescence | g—calyx with glandular hairs | h–i—flowers | j—corolla tube | k—anthers | l—style and stigma | m–n—immature and mature seeds. © Prabhat Kumar Das.

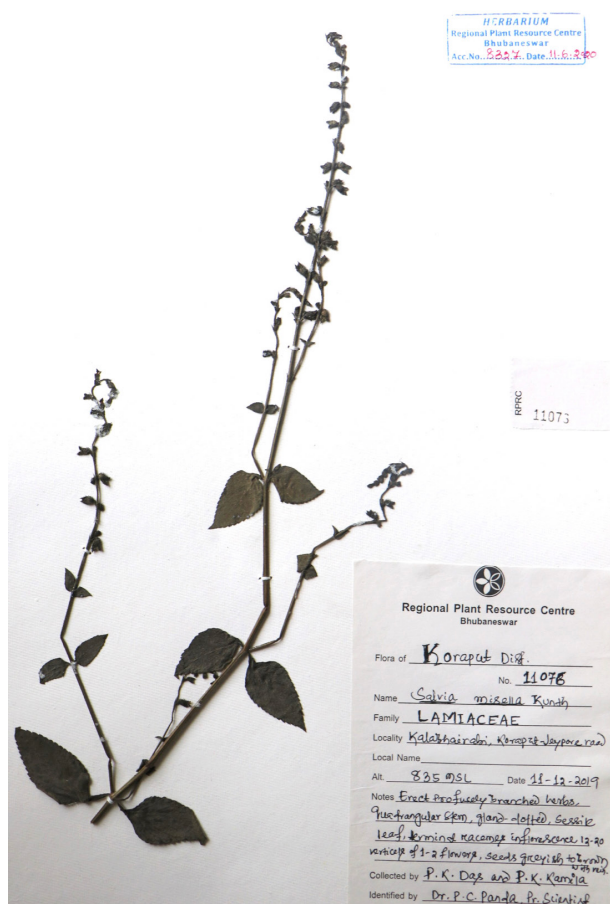


Image 2. Herbarium specimen of *Salvia misella* deposited in the herbarium of Regional Plant Resource Centre, Bhubaneswar.

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